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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.                | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------------------|------------------|
| 10/808,490   | 03/25/2004  | Erhard Kreis         | 003-126                            | 5729             |
| 36844  | 7590        | 02/09/2006           |                                    |                  |
| CERMAK & KENEALY LLP<br>515 E. BRADDOCK RD<br>ALEXANDRIA, VA 22314 |             |                      | EXAMINER<br>VERDIER, CHRISTOPHER M |                  |
|  |             |                      | ART UNIT                           | PAPER NUMBER     |
|  |             |                      | 3745                               |                  |
| DATE MAILED: 02/09/2006  |             |                      |                                    |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

|                     |              |  |
|---------------------|--------------|--|
| Application No.     | Applicant(s) |  |
| 10/808,490          | KREIS ET AL. |  |
| Examiner            | Art Unit     |  |
| Christopher Verdier | 3745         |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2005.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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Applicants' amendment dated November 11, 2005 has been carefully considered but is deemed non-persuasive. Claims 1-17 are pending. The abstract has been amended to correct the informalities noted in the first Office action. The specification has been amended to correct most of the informalities noted in the first Office action. The specification has been amended to provide antecedent basis for claimed subject matter, as required in the first Office action. Correction of the above matters is noted with appreciation.

With regard to the Information Disclosure Statement (IDS) filed September 14, 2004, which cites the IPER from PCT/IB02/03862, this reference still has not been considered because at the time of filing the IDS, Applicants did not provide a concise explanation of the relevance. Although Applicants have now provided such a statement, the IDS still fails to comply with 37 CFR 1.97(c) because it lacks the fee set forth in 37 CFR 1.17(p).

With regard to the first Office action which states that the declaration is defective because it improperly attempts to claim priority under 35 USC 119(a)-(d) of PCT application PCT/IB02/03862, and states that the priority claim for this instant application should have been made under 35 USC 120, Applicants have argued that the original declaration in this application lists the parent PCT application under the section claiming priority under section 119 which is merely a typographical error and that plainly the claim for priority to the PCT parent under section 119 should merely be denied, while the claim for priority under section 120 granted, rather than requiring the inventors to execute a fresh declaration. This argument is not

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persuasive, because the priority claim is clearly erroneous and requires a new declaration.

Additionally, as set forth later below, a new declaration is required for another reason.

With regard to the objection to the drawings set forth in the first Office action, Applicants have amended the specification to state that the structures 7, 8 can be platforms and/or other rotary machine components, including distance pieces and heat insulation segments (as added to the new paragraph at page 12, line 21). However, this statement adds new matter, for the reasons set forth below. Additionally, there is no mention in the specification that the structures 7, 8 can include distance pieces and heat insulation segments. With regard to Applicants' argument that claim 2 has been amended to recite the brazed or soldered connections so as to not require the drawings as illustrating additional material, this argument is not persuasive. Claim 2 clearly recites brazing or soldering, and as set forth in 37 CFR 1.83(a), the drawings must show every feature of the invention specified in the claims.

With regard to the objection to the specification as being unclear, Applicants have amended the paragraph beginning at page 10, lines 10-15 to state that the arrangement 1 is a rotor/stator arrangement. However, it is still unclear how vane roots 3, which are stationary, could protrude into the rotor 1, which is rotating.

With regard to the rejection of claim 7 under 35 USC 112, first paragraph, Applicant has cited MPEP 608.04(b) and argued that instead of alleging that the Preliminary Amendment including claim 7 contained new matter relative to the rest of the application materials, the Office

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action should have required a Supplemental Declaration, because claim 7 is part of the original application. This argument is not persuasive. While applicant is correct in that a supplemental declaration should have been required in the first Office action, referring to both the application and the preliminary amendment filed with the original application, Applicant did not provide such a supplemental declaration. Because Applicant did not provide such a supplemental declaration, claim 7 contains new matter. If Applicant provides such a supplemental declaration to cover claim 7, the application must be designated as a continuation-in-part, and the appropriate surcharge under 37 CFR 1.16(f) must be included.

With regard to the rejection of claims 1-17 under 35 USC 112, second paragraph, Applicant has argued that while claim 1 is complex, the scope of the claim is quite clear, and that the use of the word “or” throughout the claims does not render the claims indefinite because this is an expression of the breadth of Applicants’ invention and that complexly broad claims are not indefinite claims. Applicant has also cited MPEP 2173.05(h) and stated that this sanctions use of the word “or” in patent claims. These arguments are not persuasive, because MPEP 2173.05(h) only provides relatively uncomplicated examples of the term “or”. As set forth in the first Office action, claim 1 contains four separate instances of the term “or” in combination with different elements positioned between at least two platforms of adjacent blade rows and vane roots along a rotor blade row, or along a guide vane row, or between a platform of a blade root or of a vane root and a rotary flow machine, with the at least two adjacent platforms or the platform and the component when directly adjoining the platform enclosing the cold gap. The use of the multiple “or” clauses results in numerous permutations which render the scope of the claims unclear. If

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the Applicants feel that they are entitled to a broad claim, then it is suggested that a broad generic claim be drafted which overcomes the prior art and is clear, reciting various permutations in the dependent claims.

With regard to Applicants' argument that Beeck 6,312,218 qualifies as prior art under 35 USC 102(e) and not under section 102(b), this argument is correct, and Applicants are thanked for pointing this out. Concerning the rejection of claims 1-5, 7-8, 10-12, and 16-17 under 35 U.S.C. 102 as being anticipated by Beeck 6,312,218, Applicants have argued that the claims define over Beeck '218, because the felt-like material of Beeck fills the gaps between the components, and that there is therefore no cold gap or hot gap between the components as required by the claims, and that the components of Beeck's machine between which the felt-like material is inserted will thermally expand but that the gap will always be filled by the felt-like material. These arguments are not persuasive, because figure 3A of Beeck '218 clearly shows gaps adjacent reference numerals 12 and 13. As such, there will be a cold gap and a hot gap between the components. With regard to claim 4, Applicants have argued that intermetallic fibers cannot be placed onto a surface of a flank of a vane or blade in way of flame spraying, galvanic precipitation, or by plating, because if the fibers were treated in the course of flame spraying, they would be destroyed, and that the claim language is clearly not one of intended use, but recites a characteristic of the sealing element which is not disclosed by the prior art. These arguments are not persuasive, because these are still recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from

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the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Beeck discloses that the material of the sealing elements is aluminide or nickel aluminide, which is capable of being applied by flame spraying, galvanic precipitation, or by plating onto the platform. Column 2, lines 22-24 state that the intermetallic fibers preferably consist of an intermetallic phase on an aluminum, iron, or nickel basis or an alloy of these constituents. Clearly, these intermetallic fibers would withstand flame spraying, galvanic precipitation, or plating.

Applicants' statement (page 19, paragraphs 5-6 of the amendment dated November 11, 2005) that the instant application, Beeck 6,312,218, and Beeck 6,499,943, were, at the time the invention was made, owned by, or subject to an obligation of assignment to, the same entity, and that Beeck '218 and '943 are not available as prior art against the claims under 35 USC 103(a), is noted and is persuasive. The rejections of all of the claims under 35 USC 103(a) are therefore withdrawn.

#### ***Information Disclosure Statement***

The explanation of the relevance of the information disclosure statement filed on September 14, 2004 fails to comply with 37 CFR 1.97(c) because it lacks the fee set forth in 37 CFR 1.17(p). The content of the information, of the IPER from PCT/IB02/03862, has not been considered.

***Oath/Declaration***

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It improperly attempts to claim priority under 35 USC 119(a)-(d) of PCT application PCT/IB02/03862. The priority claim for this application should have been made under 35 USC 120.

The oath or declaration is also defective because:

The Preliminary Amendment filed March 25, 2004 adds new matter into claim 7, as set forth later below. As set forth in MPEP 608.04(b), for applications filed prior to September 21, 2004, for a preliminary amendment that was present on the filing date but was not referred to in the oath or declaration, applicant will be required to submit a supplemental oath or declaration under 37 CFR 1.67 referring to both the application and the preliminary amendment filed with the original application. A surcharge under 37 CFR 1.16(f) is also required unless it has been previously paid. Applicant should also designate the application as a continuation-in-part of the PCT application, because the subject matter of amended claim 7 has no support in the priority document.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the rotor blades and guide vanes arranged in at least one rotor blade row and at least one guide vane row, respectively, each rotor blade and guide vane having blade roots and vane roots which are fastened to the rotor blade rows and guide vane rows, respectively, with the blade roots and vane roots each having a respective platform, and the sealing element positioned between at least two platforms of adjacent blade roots and vane roots along a rotor blade row, or along a guide vane row, or between a platform of a blade root or of a vane root and a rotary flow machine component when directly adjoining the platform, with the platform and the component directly adjoining the platform (claim 1, lines 3-13 and lines 16-17), the brazing or soldering (claim 2), the platform and the component directly adjoining the platform (claims 10-11 and 13), the rotor blades and guide vanes each comprising an aerofoil (claims 12-13), the component of the rotary machine adjoining the platform including an intermediate piece comprising a distance piece or a heat insulation segment (claim 16), and the axial turbomachine (claim 17) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

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must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

The disclosure is objected to because of the following informalities: Appropriate correction is required.

Page 10, lines 12-15 state that the blade/vane roots 2, 3 protrude for fastening purposes into the rotor/stator arrangement 1. It is unclear how vane roots, which are stationary, could protrude into the rotor, which is rotating.

The amendment filed November 11, 2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

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The insertion to the paragraph beginning at page 8, line 31 to page 9, line 2, which states that the metal foam is "or combinations thereof".

The new paragraph at page 12, line 21 that states that the adjoining pieces can be rotary machine components (because this would include pieces 7, 8 both being rotary machine components, which has no support in the original specification or claims).

Applicant is required to cancel the new matter in the reply to this Office Action.

#### ***Claim Objections***

Claim 2 is objected to because of the following informalities: Appropriate correction is required.

In claim 2, line 2, "with" should be deleted.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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Amended claim 7 recites that the metal foam is at least one element selected from the group consisting of Ni, Co, Al, and combinations thereof. There is no antecedent basis for the underlined limitations in the original specification, and thus these are new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The scope of claims 1-17 is unclear, because the claims contain multiple instances of “or” clauses (claim 1, lines 10, 11, 12, and 16; claim 10, line 3, claim 11, line 3; and claim 13, line 3), which results in numerous permutations which renders the scope of the claims unclear. The “or” clauses refer to such diverse elements as along a rotor blade row, or along a guide vane row, or between a platform of a blade root or of a vane root and a rotary flow machine (claim 1, lines 9-13), or the platform and the component when directly joining the platform (claim 1, lines 16-17, claim 10, line 3, claim 11, lines 3-4, and claim 13, lines 2-3). In claim 16, lines 3-4, “including an intermediate piece comprising a distance piece, or a heat insulation segment” is unclear because it adds additional permutations by use of the “or” clause.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7-8, 10-12, and 16-17, as far as they are definite and understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Beeck 6,312,218. Note the seal arrangement for reducing seal gaps within a rotary flow machine, the seal arrangement comprising rotor blades 10, 11 and guide vanes 5, 6, arranged in at least one rotor blade row and at least one guide vane row, respectively, each row including fastening contours (the unnumbered rotor that receives the unnumbered rotor blade dovetail root, and the hooks of the casing 17 that receive the guide vane shroud portion 9), each rotor blade and guide vane having blade roots (the unnumbered blade dovetail) and vane roots (the guide vane shroud portion 9) which protrude within the rotor blade rows and guide vane rows, respectively, the blade roots and vane roots each having a respective platform (unnumbered and 7, respectively), a sealing element 3, 3' comprising a plastically deformable material (note that aluminide or nickel aluminide are plastically deformable to some degree because they are made of a metal combination which possesses a degree of plastic deformation) positioned between at least two platforms of adjacent blade roots along a rotor blade row and a guide vane row, the sealing element being firmly connected to at least one platform and having a thickness protruding from the surface of the at least one platform, the at least two adjacent platforms inherently enclosing a cold gap in a cold condition and a hot gap during operation of the rotary flow machine, due to thermal expansion during operation. Note figure 3, which shows gaps adjacent reference numerals 12 and 13. As such, there will be a cold gap and a hot gap between the components. The sealing element is connected to the platform by

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adhesive bonding or brazing. Concerning claim 3, which recites that the sealing element is applied to a platform as a layer material by a precipitation process, this is a product-by-process limitation. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product-by-process claim does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The sealing element and the platform inherently enter into a metallurgical combination. With regard to claim 4, the sealing element is configured and arranged as a layer material. With regard to claim 4, lines 3-4, which recite that the layer material is capable of being applied by flame spraying, galvanic precipitation, or by plating onto the platform, these are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Beeck discloses that the material of the sealing elements is aluminide or nickel aluminide, which is capable of being applied by flame spraying, galvanic precipitation, or by plating onto the platform. The plastically deformable material is a sintered metal (column 2, lines 4-6). Note that although the metal foam recited in claim 7 and the porous metallic coating recited in claim 8 are not disclosed by Beeck, claim 5

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upon which these claims depends recites that the plastically deformable material comprises sintered metal, a metal foam, or a porous metallic coating. Because Beeck discloses the limitation of the sealing element being a sintered metal as recited in claim 5, claims 7 and 8 are still rejected, because Beeck still meets the limitation in claim 5 of a sintered metal. The sealing element is configured and arranged so that when a contact pressure present between two platforms is exceeded in the hot condition of the rotary flow machine, the sealing element inherently will plastically deform to form a minimum hot gap. An unnumbered seal gap is enclosed by both platforms, with the seal gap defining a plane, and the sealing element is configured and arranged so that the plastic deformation inherently takes place substantially laterally relative to the plane of the seal gap, because the abutting platforms move against one another, and will deform the sealing element laterally relative to the plane of the seal gap. The rotor blades and guide vanes each comprise an unnumbered airfoil, and the sealing element (see figure 3E) has a wedge-shaped dovetail portion including a thicker wedge end oriented to face towards the airfoils of the vanes. As seen in figure 4, the component of the rotary flow machine adjoining the platform includes an intermediate piece comprising a distance piece (the combustion chamber outlet 15). The rotary flow machine comprises an axial turbomachine.

*Allowable Subject Matter*

Claims 6, 9, and 13-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

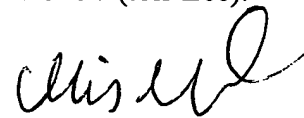
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.  
February 3, 2006



Christopher Verdier  
Primary Examiner  
Art Unit 3745